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<110> Hofmann, Kathryn J.
Jansen, Kathrin U.
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<120> DNA ENCODING HUMAN PAPILLOMAVIRUS TYPE
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<141> 2001-09-17

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| gttgtaaata | ctgatgatta | tgtgactcgc | acaagcatat | tttatcatgc | tggcagctct | 120 |
| agattattaa | ctgttggtaa | tccatatttt | agggttcctg | caggtggtgg | caataagcag | 180 |
| gatattccta | aggtttctgc | ataccaatat | agagtatttc | gggtgcagtt | acctgacca | 240 |
| aataaatttg | gtttacctga | taatagtatt | tataatcctg | aaacacaacg | tttagtgagg | 300 |
| gcctgtgctg | gagtggaaat | tggccgtggg | cagcctttag | gtgttgccct | tagtgggcat | 360 |
| ccattttata | ataaattaga | tgacactgaa | agttcccatg | ccgctacgtc | taatgtttct | 420 |
| gaggacgtta | gggacaatgt | gtctgtagat | tataagcaga | cacagttatg | tattttgggc | 480 |
| tgtgcccctg | ctattgggga | acactgggct | aaaggcactg | cttgtaaate | gcgtccttta | 540 |
| tcacagggcg | attgcccccc | tttagaactt | aagaacacag | ttttggaaga | tggtgatatg | 600 |
| gtagatactg | gatatgggtg | catggacttt | agtacattgc | aagatactaa | atgtgaggtg | 660 |
| ccattggata | tttgtcagtc | tatttgtaaa | tatcctgatt | atttacaatt | gtctgcagat | 720 |
| ccttatgggg | attccatggt | tttttgctta | cgacgtgagc | agctttttgc | taggcatttt | 780 |
| tggaataggg | caggtactat | gggtgacact | gtgcctcaat | ccttatatat | taaaggcaca | 840 |
| ggtagcgtg | cttcacctgg | cagctgtgtg | tattctccct | ctccaagtgg | ctctattggt | 900 |
| acctctgact | cccagttggt | taataaaacca | tattgggtac | ataaggcaca | gggtcataac | 960 |
| aatggatatc | gctggcataa | tcaattattt | gttactgtgg | tagataccac | tcgtagtacc | 1020 |
| aatttaacaa | tatgtgcttc | tacacagtct | cctgtacctg | ggcaatatga | tgctaccaa | 1080 |
| tttaagcagt | atagcagaca | tggtgaagaa | tatgatttgc | agtttatttt | tcagttatgt | 1140 |
| actattactt | taactgcaga | tggtatgtcc | tatattcata | gtatgaatag | cagtatttta | 1200 |
| gaggattgga | actttgggtg | ttcccccccg | ccaactacta | gtttgggtgga | tacatatcgt | 1260 |
| tttgtacaat | ctgttgctat | tacctgtcaa | aaggatgctg | caccagctga | aaataaggat | 1320 |
| ccctatgata | agttaaagtt | ttggaatgtg | gatttaaaag | aaaagttttc | tttggactta | 1380 |
| gatcaatatc | cccttggaag | taaatttttg | gttcaggctg | gattgcgtcg | caagcccacc | 1440 |
| ataggccctc | gtaaacgttc | tgctccatct | gccactacgt | cttctaaacc | tgccaagcgt | 1500 |

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| Ser | Val | Ala | Arg | Val | Val | Asn | Thr | Asp | Asp | Tyr | Val | Thr | Arg | Thr | Ser |
| | | | 20 | | | | | 25 | | | | | 30 | | |
| Ile | Phe | Tyr | His | Ala | Gly | Ser | Ser | Arg | Leu | Leu | Thr | Val | Gly | Asn | Pro |
| | | 35 | | | | 40 | | | | | | 45 | | | |
| Tyr | Phe | Arg | Val | Pro | Ala | Gly | Gly | Gly | Asn | Lys | Gln | Asp | Ile | Pro | Lys |
| | 50 | | | | 55 | | | | | | 60 | | | | |
| Val | Ser | Ala | Tyr | Gln | Tyr | Arg | Val | Phe | Arg | Val | Gln | Leu | Pro | Asp | Pro |
| 65 | | | | 70 | | | | | 75 | | | | | 80 | |
| Asn | Lys | Phe | Gly | Leu | Pro | Asp | Asn | Ser | Ile | Tyr | Asn | Pro | Glu | Thr | Gln |
| | | | 85 | | | | | 90 | | | | | 95 | | |
| Arg | Leu | Val | Trp | Ala | Cys | Ala | Gly | Val | Glu | Ile | Gly | Arg | Gly | Gln | Pro |
| | | | 100 | | | | | 105 | | | | | 110 | | |
| Leu | Gly | Val | Gly | Leu | Ser | Gly | His | Pro | Phe | Tyr | Asn | Lys | Leu | Asp | Asp |
| | | 115 | | | | 120 | | | | | | 125 | | | |
| Thr | Glu | Ser | Ser | His | Ala | Ala | Thr | Ser | Asn | Val | Ser | Glu | Asp | Val | Arg |
| | 130 | | | | 135 | | | | | | 140 | | | | |
| Asp | Asn | Val | Ser | Val | Asp | Tyr | Lys | Gln | Thr | Gln | Leu | Cys | Ile | Leu | Gly |
| 145 | | | | 150 | | | | | | 155 | | | | | 160 |
| Cys | Ala | Pro | Ala | Ile | Gly | Glu | His | Trp | Ala | Lys | Gly | Thr | Ala | Cys | Lys |
| | | | 165 | | | | | 170 | | | | | 175 | | |
| Ser | Arg | Pro | Leu | Ser | Gln | Gly | Asp | Cys | Pro | Pro | Leu | Glu | Leu | Lys | Asn |
| | | | 180 | | | | | 185 | | | | | 190 | | |
| Thr | Val | Leu | Glu | Asp | Gly | Asp | Met | Val | Asp | Thr | Gly | Tyr | Gly | Ala | Met |
| | | 195 | | | | | 200 | | | | | 205 | | | |
| Asp | Phe | Ser | Thr | Leu | Gln | Asp | Thr | Lys | Cys | Glu | Val | Pro | Leu | Asp | Ile |
| | 210 | | | | | 215 | | | | | 220 | | | | |
| Cys | Gln | Ser | Ile | Cys | Lys | Tyr | Pro | Asp | Tyr | Leu | Gln | Met | Ser | Ala | Asp |
| 225 | | | | 230 | | | | | | 235 | | | | | 240 |
| Pro | Tyr | Gly | Asp | Ser | Met | Phe | Phe | Cys | Leu | Arg | Arg | Glu | Gln | Leu | Phe |
| | | | 245 | | | | | 250 | | | | | | 255 | |
| Ala | Arg | His | Phe | Trp | Asn | Arg | Ala | Gly | Thr | Met | Gly | Asp | Thr | Val | Pro |
| | | | 260 | | | | | 265 | | | | | 270 | | |
| Gln | Ser | Leu | Tyr | Ile | Lys | Gly | Thr | Gly | Met | Arg | Ala | Ser | Pro | Gly | Ser |
| | | 275 | | | | 280 | | | | | | 285 | | | |
| Cys | Val | Tyr | Ser | Pro | Ser | Pro | Ser | Gly | Ser | Ile | Val | Thr | Ser | Asp | Ser |
| | 290 | | | | | 295 | | | | | 300 | | | | |
| Gln | Leu | Phe | Asn | Lys | Pro | Tyr | Trp | Leu | His | Lys | Ala | Gln | Gly | His | Asn |
| 305 | | | | 310 | | | | | | 315 | | | | | 320 |
| Asn | Gly | Ile | Cys | Trp | His | Asn | Gln | Leu | Phe | Val | Thr | Val | Val | Asp | Thr |
| | | | 325 | | | | | 330 | | | | | | 335 | |
| Thr | Arg | Ser | Thr | Asn | Leu | Thr | Ile | Cys | Ala | Ser | Thr | Gln | Ser | Pro | Val |
| | | | 340 | | | | | 345 | | | | | 350 | | |
| Pro | Gly | Gln | Tyr | Asp | Ala | Thr | Lys | Phe | Lys | Gln | Tyr | Ser | Arg | His | Val |
| | | 355 | | | | 360 | | | | | | 365 | | | |
| Glu | Glu | Tyr | Asp | Leu | Gln | Phe | Ile | Phe | Gln | Leu | Cys | Thr | Ile | Thr | Leu |
| | 370 | | | | 375 | | | | | | 380 | | | | |
| Thr | Ala | Asp | Val | Met | Ser | Tyr | Ile | His | Ser | Met | Asn | Ser | Ser | Ile | Leu |
| 385 | | | | 390 | | | | | | 395 | | | | | 400 |
| Glu | Asp | Trp | Asn | Phe | Gly | Val | Pro | Pro | Pro | Pro | Thr | Thr | Ser | Leu | Val |

| | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| | | | | 405 | | | | 410 | | | | | 415 | | |
| Asp | Thr | Tyr | Arg | Phe | Val | Gln | Ser | Val | Ala | Ile | Thr | Cys | Gln | Lys | Asp |
| | | | 420 | | | | | 425 | | | | | 430 | | |
| Ala | Ala | Pro | Ala | Glu | Asn | Lys | Asp | Pro | Tyr | Asp | Lys | Leu | Lys | Phe | Trp |
| | | | 435 | | | | 440 | | | | | 445 | | | |
| Asn | Val | Asp | Leu | Lys | Glu | Lys | Phe | Ser | Leu | Asp | Leu | Asp | Gln | Tyr | Pro |
| | | | 450 | | | 455 | | | | | 460 | | | | |
| Leu | Gly | Arg | Lys | Phe | Leu | Val | Gln | Ala | Gly | Leu | Arg | Arg | Lys | Pro | Thr |
| 465 | | | | | 470 | | | | | 475 | | | | | 480 |
| Ile | Gly | Pro | Arg | Lys | Arg | Ser | Ala | Pro | Ser | Ala | Thr | Thr | Ser | Ser | Lys |
| | | | | 485 | | | | | 490 | | | | | 495 | |
| Pro | Ala | Lys | Arg | Val | Arg | Val | Arg | Ala | Arg | Lys | | | | | |
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<212> DNA
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| tgtaaacaat | ctggtacatg | tccattctgat | gttgtaataa | aggtagaggg | caccacgtta | 120 | |
| gcagataaaa | tattgcaatg | gtcaagccctt | ggatattttt | tgggtggact | tggcatagggt | 180 | |
| actggaagtg | gtacagggggg | tcgtacaggg | tacattccat | tgggtgggcg | ttccaataca | 240 | |
| gttggtggtg | tcgggtcctac | acgtcctcca | gtggttattg | aacctgtggg | ccccacagac | 300 | |
| ccattctattg | ttacattaat | agaggactca | agtgttgta | catcagggtc | acctaggcct | 360 | |
| accttttactg | gcacgtctgg | gtttgatata | acattctgtg | gtacaactac | acctgcagtt | 420 | |
| ttggatatca | caccttcgtc | tacctctgtt | tctatttcca | caaccaattt | taccaatcct | 480 | |
| gcatttttctg | atccgtccat | tattgaagtt | ccacaaactg | gggagggtgc | aggtaattga | 540 | |
| tttgttggta | cccctacatc | tggaaacacat | gggtatgaag | aaataacctt | acaaacattt | 600 | |
| gcttcttctg | gtacggggga | ggaacccatt | agtagtacc | ctatgcctac | tgtgcggcgt | 660 | |
| gtagcaggtc | cccgccctta | cagtagggcc | taccaacaag | tgtctgtggc | taaccctgag | 720 | |
| tttctttacac | gtccatcctc | tttaattacc | tatgacaacc | cggcctttga | gcctgtggac | 780 | |
| actacattaa | cattttgagcc | tcgtagtaat | gttctctgatt | cgatttttat | ggatattatc | 840 | |
| cgtttacata | ggcctgcttt | aacatccagg | cgtggtactg | tgcgctttag | tagattaggt | 900 | |
| caaagggcaa | ctatgtttac | ccgtagcggg | acacaaatag | gtgctagggt | tcacttttat | 960 | |
| catgatataa | gtcctattgc | accctcccca | gaatatattg | aactgcagcc | tttagtatct | 1020 | |
| gccacggagg | acaattggctt | gtttgatata | tattcgatg | acatagaccc | tgcaatgcct | 1080 | |
| gtaccatcgc | gtcctactac | ctcctctgca | gtttctacat | attcgcccac | tatatcatct | 1140 | |
| gcctcttccct | atagtaatgt | aacgggtcct | ttaacctcct | cttgggatgt | gcctgtatac | 1200 | |
| acgggtcctg | atattacatt | accacctact | acctctgtat | ggcccattgt | atcaccacaca | 1260 | |
| gcccctgcct | ctacacagta | tattggtata | catggtacac | attattattt | gtggccatta | 1320 | |
| tattattttta | ttcctaaaaa | gcgtaaacgt | gttccctatt | tttttgcaga | tggcctttgtg | 1380 | |
| qcggcctag | | | | | | 1389 | |

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Leu Tyr Lys Thr Cys Lys Gln Ser Gly Thr Cys Pro Ser Asp Val Val
      20              25      30

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| | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Asn | Lys | Val | Glu | Gly | Thr | Thr | Leu | Ala | Asp | Lys | Ile | Leu | Gln | Trp | Ser |
| | | 35 | | | | | 40 | | | | | 45 | | | |
| Ser | Leu | Gly | Ile | Phe | Leu | Gly | Gly | Leu | Gly | Ile | Gly | Thr | Gly | Ser | Gly |
| | 50 | | | | | 55 | | | | | 60 | | | | |
| Thr | Gly | Gly | Arg | Thr | Gly | Tyr | Ile | Pro | Leu | Gly | Gly | Arg | Ser | Asn | Thr |
| 65 | | | | | 70 | | | | | 75 | | | | 80 | |
| Val | Val | Asp | Val | Gly | Pro | Thr | Arg | Pro | Pro | Val | Val | Ile | Glu | Pro | Val |
| | | | | 85 | | | | 90 | | | | | | 95 | |
| Gly | Pro | Thr | Asp | Pro | Ser | Ile | Val | Thr | Leu | Ile | Glu | Asp | Ser | Ser | Val |
| | | | 100 | | | | | 105 | | | | | 110 | | |
| Val | Thr | Ser | Gly | Ala | Pro | Arg | Pro | Thr | Phe | Thr | Gly | Thr | Ser | Gly | Phe |
| | | 115 | | | | | 120 | | | | | 125 | | | |
| Asp | Ile | Thr | Ser | Ala | Gly | Thr | Thr | Thr | Pro | Ala | Val | Leu | Asp | Ile | Thr |
| | 130 | | | | | 135 | | | | | 140 | | | | |
| Pro | Ser | Ser | Thr | Ser | Val | Ser | Ile | Ser | Thr | Thr | Asn | Phe | Thr | Asn | Pro |
| 145 | | | | | 150 | | | | | 155 | | | | | 160 |
| Ala | Phe | Ser | Asp | Pro | Ser | Ile | Ile | Glu | Val | Pro | Gln | Thr | Gly | Glu | Val |
| | | | | 165 | | | | 170 | | | | | | 175 | |
| Ser | Gly | Asn | Val | Phe | Val | Gly | Thr | Pro | Thr | Ser | Gly | Thr | His | Gly | Tyr |
| | | | 180 | | | | | 185 | | | | | 190 | | |
| Glu | Glu | Ile | Pro | Leu | Gln | Thr | Phe | Ala | Ser | Ser | Gly | Thr | Gly | Glu | Glu |
| | | 195 | | | | | 200 | | | | | 205 | | | |
| Pro | Ile | Ser | Ser | Thr | Pro | Leu | Pro | Thr | Val | Arg | Arg | Val | Ala | Gly | Pro |
| | 210 | | | | | 215 | | | | | 220 | | | | |
| Arg | Leu | Tyr | Ser | Arg | Ala | Tyr | Gln | Gln | Val | Ser | Val | Ala | Asn | Pro | Glu |
| 225 | | | | | 230 | | | | | 235 | | | | | 240 |
| Phe | Leu | Thr | Arg | Pro | Ser | Ser | Leu | Ile | Thr | Tyr | Asp | Asn | Pro | Ala | Phe |
| | | | | 245 | | | | | 250 | | | | | 255 | |
| Glu | Pro | Val | Asp | Thr | Thr | Leu | Thr | Phe | Glu | Pro | Arg | Ser | Asn | Val | Pro |
| | | | 260 | | | | | 265 | | | | | 270 | | |
| Asp | Ser | Asp | Phe | Met | Asp | Ile | Ile | Arg | Leu | His | Arg | Pro | Ala | Leu | Thr |
| | | 275 | | | | 280 | | | | | | 285 | | | |
| Ser | Arg | Arg | Gly | Thr | Val | Arg | Phe | Ser | Arg | Leu | Gly | Gln | Arg | Ala | Thr |
| | 290 | | | | | 295 | | | | | 300 | | | | |
| Met | Phe | Thr | Arg | Ser | Gly | Thr | Gln | Ile | Gly | Ala | Arg | Val | His | Phe | Tyr |
| 305 | | | | | 310 | | | | | 315 | | | | | 320 |
| His | Asp | Ile | Ser | Pro | Ile | Ala | Pro | Ser | Pro | Glu | Tyr | Ile | Glu | Leu | Gln |
| | | | | 325 | | | | | 330 | | | | | 335 | |
| Pro | Leu | Val | Ser | Ala | Thr | Glu | Asp | Asn | Gly | Leu | Phe | Asp | Ile | Tyr | Ala |
| | | | 340 | | | | | 345 | | | | | 350 | | |
| Asp | Asp | Ile | Asp | Pro | Ala | Met | Pro | Val | Pro | Ser | Arg | Pro | Thr | Thr | Ser |
| | | 355 | | | | | 360 | | | | | 365 | | | |
| Ser | Ala | Val | Ser | Thr | Tyr | Ser | Pro | Thr | Ile | Ser | Ser | Ala | Ser | Ser | Tyr |
| | 370 | | | | | 375 | | | | | 380 | | | | |
| Ser | Asn | Val | Thr | Val | Pro | Leu | Thr | Ser | Ser | Trp | Asp | Val | Pro | Val | Tyr |
| 385 | | | | | 390 | | | | | 395 | | | | | 400 |
| Thr | Gly | Pro | Asp | Ile | Thr | Leu | Pro | Pro | Thr | Ser | Val | Trp | Pro | Ile | Val |
| | | | | 405 | | | | | 410 | | | | | 415 | |
| Ser | Pro | Thr | Ala | Pro | Ala | Ser | Thr | Gln | Tyr | Ile | Gly | Ile | His | Gly | Thr |
| | | | 420 | | | | | 425 | | | | | 430 | | |
| His | Tyr | Tyr | Leu | Trp | Pro | Leu | Tyr | Tyr | Phe | Ile | Pro | Lys | Lys | Arg | Lys |
| | | 435 | | | | | 440 | | | | | 445 | | | |
| Arg | Val | Pro | Tyr | Phe | Phe | Ala | Asp | Gly | Phe | Val | Ala | Ala | | | |
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